



Installation and Introduction to R Environment



Language R: Install

- Interpreted and non-compiled language: commands written on the keyboard are executed directly without the need to build executables.
 - Url: <http://www.r-project.org>
 - Install: <http://cran.us.r-project.org>
- You can work:
 1. R Console
 2. RStudio

1. R Console

The screenshot shows a web browser window with the URL <https://cran.r-project.org>. The page is titled "The Comprehensive R Archive Network". On the left, there is a sidebar with links for CRAN Mirrors, What's new?, Task Views, Search, About R, R Homepage, and The R Journal. Below that is a section for Software, listing R Sources, R Binaries, Packages, and Other. Further down are links for Documentation, Manuals, FAQs, and Contributed. The main content area has a heading "Download and Install R" with a sub-section for Windows and Mac users. It lists three download links: "Download R for Linux", "Download R for (Mac) OS X", and "Download R for Windows". This list is highlighted with a red rectangle. Below this, it says R is part of many Linux distributions. The next section, "Source Code for all Platforms", discusses binary distributions and source code compilation. It lists several options for downloading R source code, including the latest release, alpha/beta releases, daily snapshots, and contributed packages. The final section, "Questions About R", provides a link to frequently asked questions. The browser's address bar shows the URL, and the taskbar at the bottom includes icons for File Explorer, Internet Explorer, Word, and other applications.

The Comprehensive R Archive Network

Download and Install R

Precompiled binary distributions of the base system and contributed packages, **Windows and Mac** users most likely want one of these versions of R:

- [Download R for Linux](#)
- [Download R for \(Mac\) OS X](#)
- [Download R for Windows](#)

R is part of many Linux distributions, you should check with your Linux package management system in addition to the link above.

Source Code for all Platforms

Windows and Mac users most likely want to download the precompiled binaries listed in the upper box, not the source code. The sources have to be compiled before you can use them. If you do not know what this means, you probably do not want to do it!

- The latest release (2018-12-20, Eggshell Igloo) [R-3.5.2.tar.gz](#), read [what's new](#) in the latest version.
- Sources of [R alpha and beta releases](#) (daily snapshots, created only in time periods before a planned release).
- Daily snapshots of current patched and development versions are [available here](#). Please read about [new features and bug fixes](#) before filing corresponding feature requests or bug reports.
- Source code of older versions of R is [available here](#).
- Contributed extension [packages](#)

Questions About R

- If you have questions about R like how to download and install the software, or what the license terms are, please read our [answers to frequently asked questions](#) before you send an email.

R for Windows



Subdirectories

- | | |
|-----------------------------|---|
| base | Binaries for base distribution. This is what you want to install R for the first time . |
| contrib | Binaries of contributed CRAN packages (for R >= 2.13.x; managed by Uwe Ligges). There is also information on third party software available for CRAN Windows services and corresponding environment and make variables. |
| old contrib | Binaries of contributed CRAN packages for outdated versions of R (for R < 2.13.x; managed by Uwe Ligges). |
| Rtools | Tools to build R and R packages. This is what you want to build your own packages on Windows, or to build R itself. |

Please do not submit binaries to CRAN. Package developers might want to contact Uwe Ligges directly in case of questions / suggestions related to Windows binaries.

You may also want to read the [R FAQ](#) and [R for Windows FAQ](#).

Note: CRAN does some checks on these binaries for viruses, but cannot give guarantees. Use the normal precautions with downloaded executables.

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R-3.6.2 for Windows (32/64 bit)

[Download R 3.6.2 for Windows \(83 megabytes, 32/64 bit\)](#)

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Frequently asked questions

- [Does R run under my version of Windows?](#)
- [How do I update packages in my previous version of R?](#)
- [Should I run 32-bit or 64-bit R?](#)

Please see the [R FAQ](#) for general information about R and the [R Windows FAQ](#) for Windows-specific information.

Other builds

- Patches to this release are incorporated in the [r-patched snapshot build](#).
- A build of the development version (which will eventually become the next major release of R) is available in the [r-devel snapshot build](#).
- [Previous releases](#)

Note to webmasters: A stable link which will redirect to the current Windows binary release is
<<CRAN MIRROR>/bin/windows/base/release.htm>.

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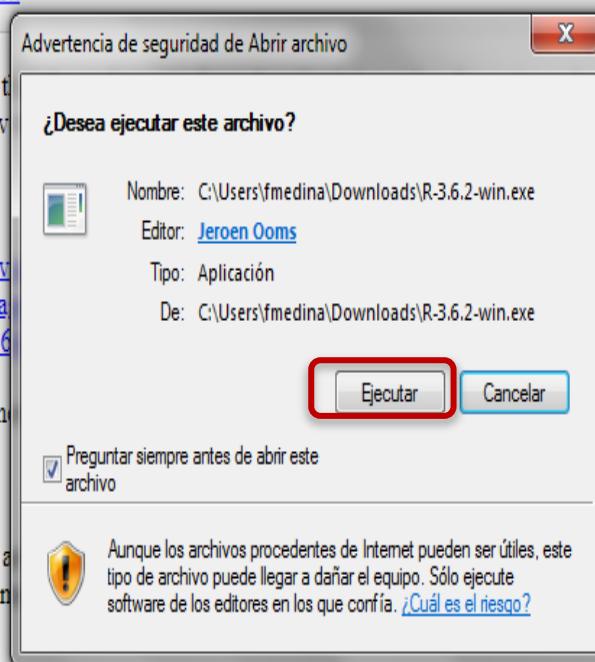
- [Does R run under my version of Windows?](#)
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- [Should I run 32-bit or 64-bit R?](#)

Please see the [R FAQ](#) for general information.

- Patches to this release are available at [CRAN](#).
- A build of the development version of R (the code used to create the stable release) is available in the [r-devel snapshot build](#).
- [Previous releases](#)

Note to webmasters: A stable link which will redirect to the current Windows binary release is <http://<CRAN MIRROR>/bin/windows/base/release.htm>.

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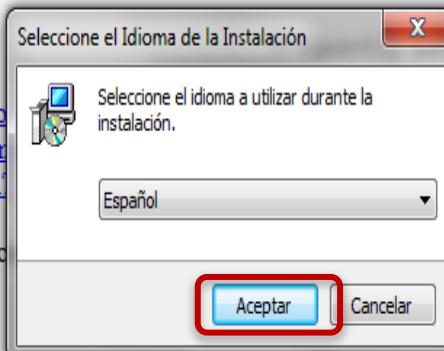
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Please see the [R FAQ](#) for general info

- [Does R run under my version of Windows?](#)
- [How do I update packages in my Windows system?](#)
- [Should I run 32-bit or 64-bit R?](#)

Note to webmasters: A stable link which will redirect to the current Windows binary release is
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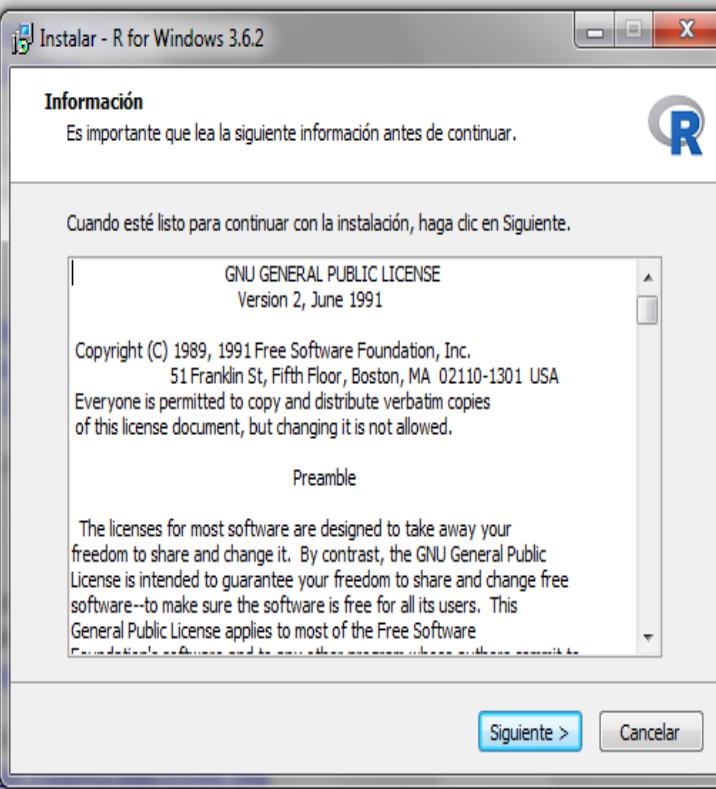
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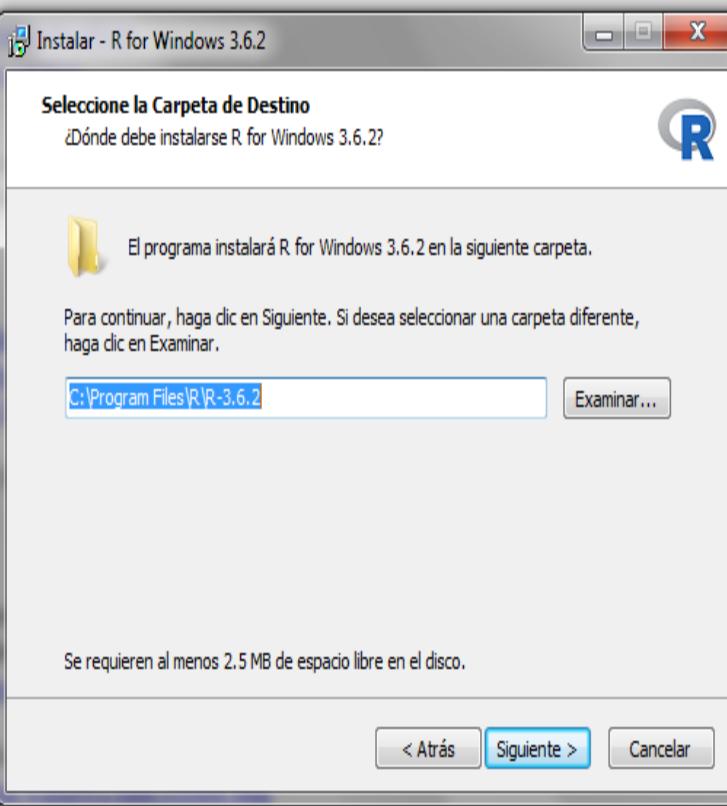
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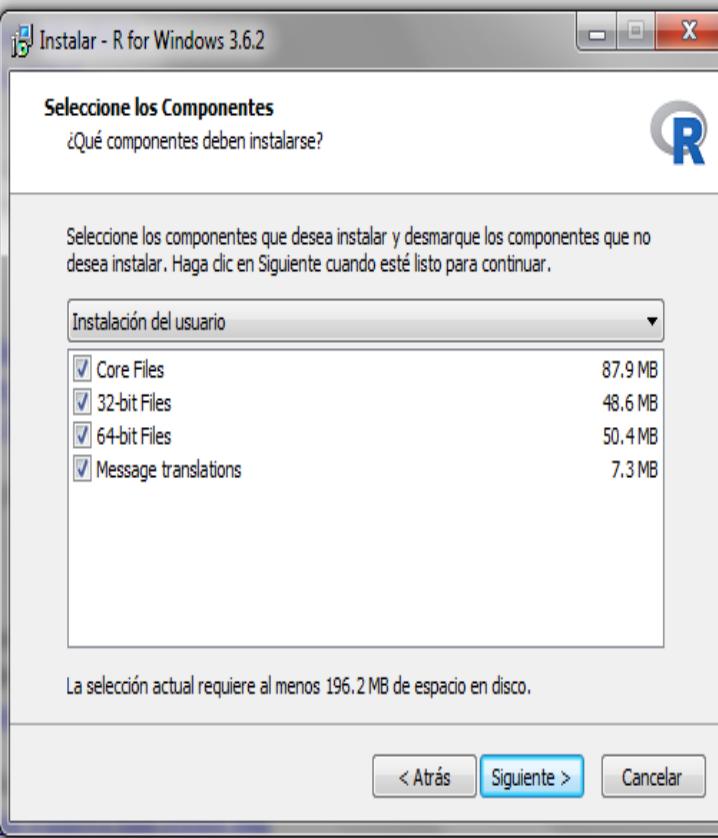
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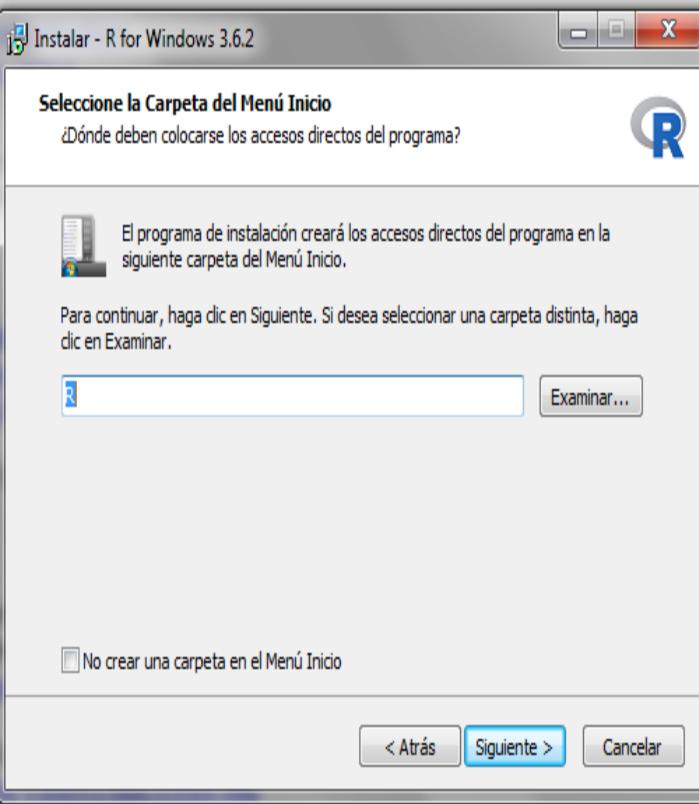
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Seleccione las Tareas Adicionales
¿Qué tareas adicionales deben realizarse?

R

Seleccione las tareas adicionales que desea que se realicen durante la instalación de R for Windows 3.6.2 y haga clic en Siguiente.

Accesos directos adicionales:

Crear un acceso directo en el escritorio

Crear un acceso directo en Inicio Rápido

Registro de entradas:

Guarde el número de versión en el registro

Asociar archivos .RData con R

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< Atrás Siguiente > Cancelar

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If you want to double-check the integrity of the download, you can compare the [md5sum](#) of the .exe to the [command line versions](#) are available.

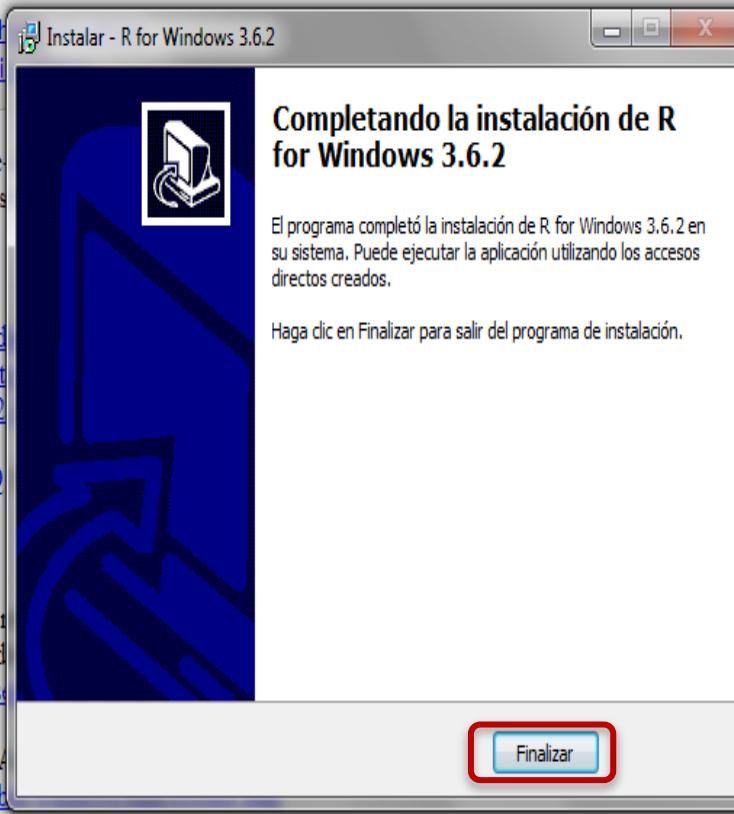
- [Does R run under 32-bit Windows?](#)
- [How do I update R?](#)
- [Should I run 32-bit or 64-bit R?](#)

Please see the [R FAQ](#).

- Patches to this release
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Note to webmasters: A copy of this page is available at
<http://<CRAN MIRROR>/bin/windows/R/R-3.6.2/Windows.html>

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is available in the [r-devel snapshot build](#).



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- Google Chrome
- Microsoft Excel 2010
- Microsoft Outlook 2010
- Microsoft PowerPoint 2010
- Calculadora
- Skype
- RStudio
- Bloc de notas
- Notas rápidas

R i386 3.6.2

Todos los programas

Buscar programas y archivos

If you



double-check that the package you have downloaded matches the package distributed by CRAN, you can compare the [md5sum](#) of the .exe to the server. You will need a version of md5sum for windows: both [graphical](#) and [command line versions](#) are available.

Frequently asked questions

[Why version of Windows?](#)

[Which packages in my previous version of R?](#)

[32-bit or 64-bit R?](#)

general information about R and the [R Windows FAQ](#) for Windows-specific information.

Other builds

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The stable link which will redirect to the current Windows binary release is

[windows-base/release.htm](#)

R Archivo Editar Visualizar Misc Paquetes Ventanas Ayuda



R version 3.5.2 (2018-12-20) -- "Eggshell Igloo"
Copyright (C) 2018 The R Foundation for Statistical Computing
Platform: i386-w64-mingw32/i386 (32-bit)

R es un software libre y viene sin GARANTIA ALGUNA.
Usted puede redistribuirlo bajo ciertas circunstancias.
Escriba 'license()' o 'licence()' para detalles de distribucion.

R es un proyecto colaborativo con muchos contribuyentes.
Escriba 'contributors()' para obtener más información y
'citation()' para saber cómo citar R o paquetes de R en publicaciones.

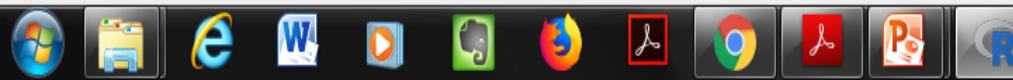
Escriba 'demo()' para demostraciones, 'help()' para el sistema on-line de ayuda,
o 'help.start()' para abrir el sistema de ayuda HTML con su navegador.
Escriba 'q()' para salir de R.

[Previously saved workspace restored]

> |



You can write code in the prompt





```
R version 3.6.2 (2019-12-12) -- "Dark and Stormy Night"
Copyright (C) 2019 The R Foundation for Statistical Computing
Platform: i386-w64-mingw32/i386 (32-bit)
```

```
R es un software libre y viene sin GARANTIA ALGUNA.
Usted puede redistribuirlo bajo ciertas circunstancias.
Escriba 'license()' o 'licence()' para detalles de distribucion.
```

```
R es un proyecto colaborativo con muchos contribuyentes.
Escriba 'contributors()' para obtener más información y
'citation()' para saber cómo citar R o paquetes de R en publicaciones.
```

```
Escriba 'demo()' para demostraciones, 'help()' para el sistema on-line de ayuda,
o 'help.start()' para abrir el sistema de ayuda HTML con su navegador.
Escriba 'q()' para salir de R.
```

```
[Previously saved workspace restored]
```

```
> 5+5
[1] 10
> |
```

R Console

- Recommended steps to work with the R console:
 - 1.- Write the code in a text editor (notepad, wordpad, etc.)
 - 2.- Execute the code in the console of R.
 - 3.- If there is a syntax error, modify it in the editor to execute it again

```
apartadoA<-function()
{
A=matrix(c(7,4,5,7),nrow=2, ncol=2)
print(A)
B=c()
for(i in 1:length(A))
  B=c(B,"*")
print(B)

minimo=1
maximo=10
cont=0
numveces=length(A)
while(cont<numveces)
{
  print("escriba un número entre 1 y 10")
  dato=scan(,what=numeric(),1)
  while((dato<minimo)|(dato>maximo))
  {
    print("Número fuera de rango")
    print("escriba un número entre 1 y 10")
    dato=scan(,what=numeric(),1)
  }
  cont=cont+1
  for(i in 1:nrow(A))

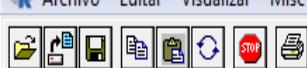
    for(j in 1:ncol(A))
      if(A[i,j]==dato)
      {
        A[i,j] ="*"
        z=1
        insertado=FALSE
        while((z<=length(B))&(insertado==FALSE))
        {
          if (B[z]=="*")
          {
            B[z]=dato
            insertado=TRUE
          }
          else
            z=z+1
        }
      }
    print(A)
    print(B)
}
```

Write in a text editor



```
+ cont=0
+ numveces=length(A)
+ while(cont<numveces)
+ {
+   print("escriba un número entre 1 y 10")
+   dato=scan(,what=numeric(),1)
+   while((dato<minimo) | (dato>maximo))
+   {
+     print("Número fuera de rango")
+     print("escriba un número entre 1 y 10")
+     dato=scan(,what=numeric(),1)
+   }
+   cont=cont+1
+ for(i in 1:nrow(A))
+
+   for(j in 1:ncol(A))
+     if(A[i,j]==dato)
+     {
+       A[i,j]="*"
+       z=1
+       insertado=FALSE
+       while((z<=length(B)) & (insertado==FALSE))
+       {
+         if (B[z]=="*")
+         {
+           B[z]=dato
+           insertado=TRUE
+         }
+         else
+           z=z+1
+       }
+     }
+   }
+   print(A)
+   print(B)
+ }
>
> |
```

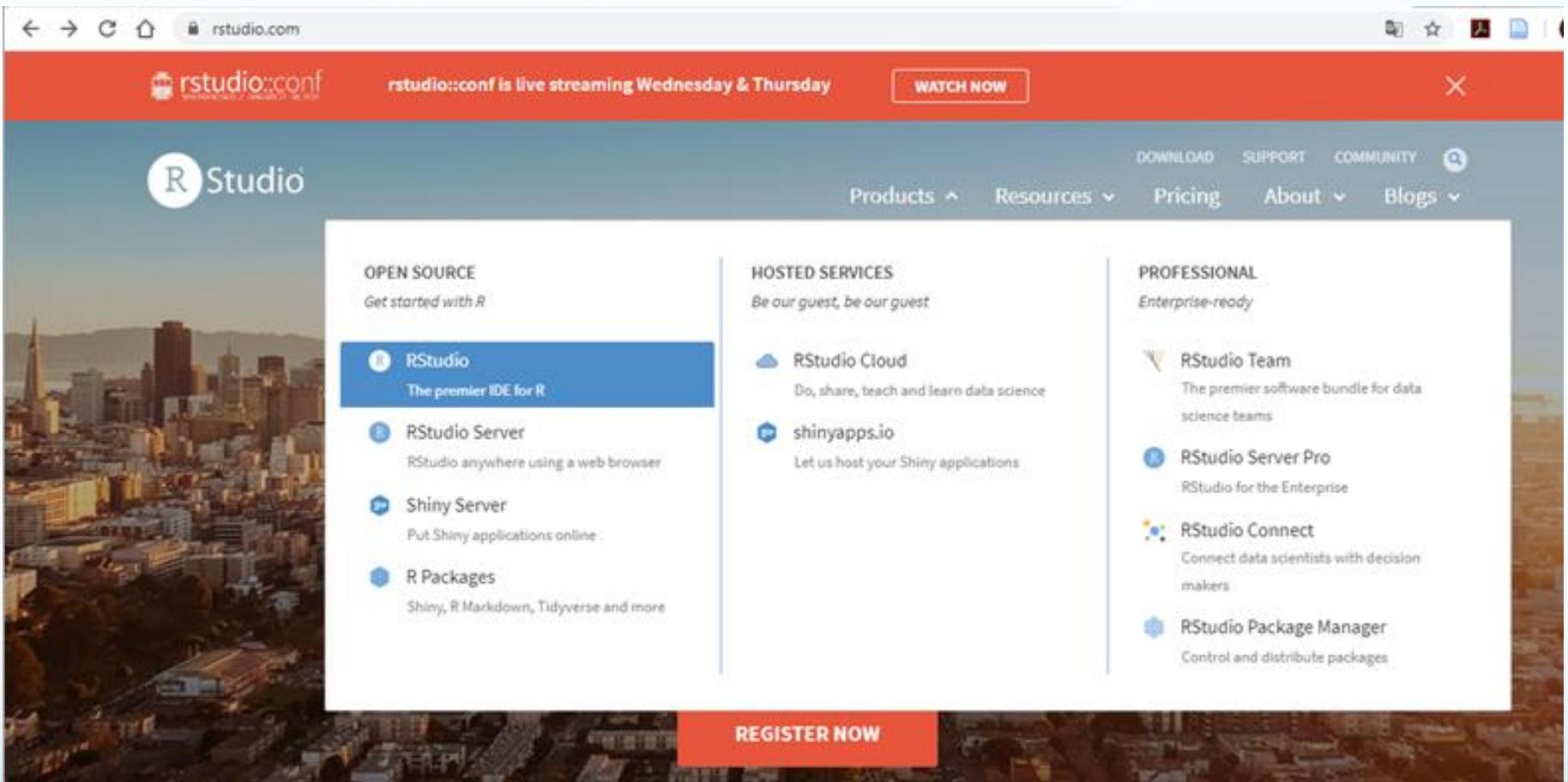
Paste the code in the
console



```
+     cont=cont+1
+     for(i in 1:nrow(A))
+
+       for(j in 1:ncol(A))
+         if(A[i,j]==dato)
+         {
+           A[i,j]="""
+           z=1
+           insertado=FALSE
+           while((z<=length(B)) & (insertado==FALSE))
+           {
+             if (B[z]=="""
+             {
+               B[z]=dato
+               insertado=TRUE
+             }
+             else
+               z=z+1
+           }
+         }
+       }
+     }
+   print(A)
+   print(B)
+ }
>
> apartadoA()
 [,1] [,2]
[1,]    7    5
[2,]    4    7
[1] """ """
[1] "escriba un n mero entre 1 y 10"
1: 4
Read 1 item
[1] "escriba un n mero entre 1 y 10"
1: 3
Read 1 item
[1] "escriba un n mero entre 1 y 10"
1: |
```

Execute the code





The screenshot shows the RStudio website homepage. At the top, there's a red header bar with the URL "rstudio.com". Below it, a banner for "rstudio::conf" is displayed, stating "rstudio::conf is live streaming Wednesday & Thursday" with a "WATCH NOW" button. The main navigation menu includes "Products", "Resources", "Pricing", "About", and "Blogs". On the left, there's a large image of a city skyline at sunset. The central content area is divided into three columns: "OPEN SOURCE" (with links to RStudio, RStudio Server, Shiny Server, and R Packages), "HOSTED SERVICES" (with links to RStudio Cloud and shinyapps.io), and "PROFESSIONAL" (with links to RStudio Team, RStudio Server Pro, RStudio Connect, and RStudio Package Manager). A prominent red "REGISTER NOW" button is located at the bottom of the page.

rstudio::conf is live streaming Wednesday & Thursday

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OPEN SOURCE
Get started with R

- RStudio**
The premier IDE for R
- RStudio Server**
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Put Shiny applications online
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RStudio

Take control of your R code

RStudio is an integrated development environment (IDE) for R. It includes a console, syntax-highlighting editor that supports direct code execution, as well as tools for plotting, history, debugging and workspace management. [Click here to see more RStudio features.](#)

RStudio is available in **open source** and **commercial** editions and runs on the desktop (Windows, Mac, and Linux) or in a browser connected to RStudio Server or RStudio Server Pro (Debian/Ubuntu, Red Hat/CentOS, and SUSE Linux).

There are two versions of RStudio:



RStudio Desktop

Run RStudio on your desktop



RStudio Server

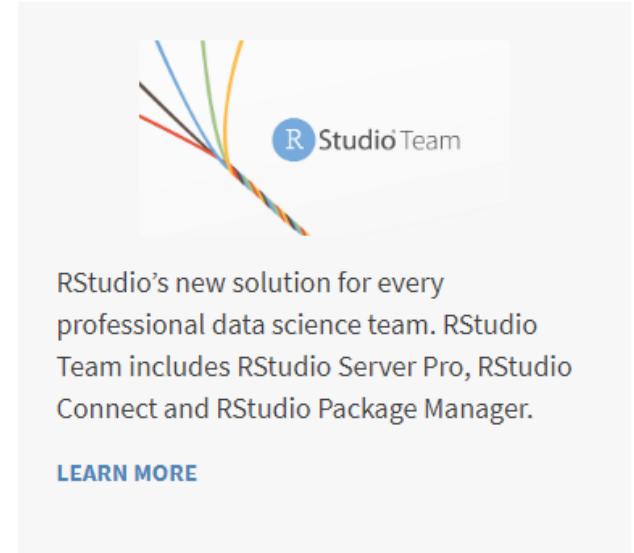
Centralize access and computation

	Open Source Edition	RStudio Desktop Pro
Overview	<ul style="list-style-type: none">• Access RStudio locally• Syntax highlighting, code completion, and smart indentation• Execute R code directly from the source editor• Quickly jump to function definitions• Easily manage multiple working directories using projects• Integrated R help and documentation• Interactive debugger to diagnose and fix errors quickly• Extensive package development tools	All of the features of open source; plus: <ul style="list-style-type: none">• A commercial license for organizations not able to use AGPL software• Access to priority support• RStudio Professional Drivers
Support	Community forums only	<ul style="list-style-type: none">• Priority Email Support• 8 hour response during business hours (ET)
License	AGPL v3	RStudio License Agreement
Pricing	Free	\$995/year
	DOWNLOAD RSTUDIO DESKTOP	DOWNLOAD FREE RSTUDIO DESKTOP PRO TRIAL

Choose Your Version

RStudio is a set of integrated tools designed to help you be more productive with R. It includes a console, syntax-highlighting editor that supports direct code execution, and a variety of robust tools for plotting, viewing history, debugging and managing your workspace.

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RStudio Desktop

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Free

RStudio Desktop

Commercial License

\$995 /year

RStudio Server

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RStudio Server Pro

Commercial License

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(5 Named Users)

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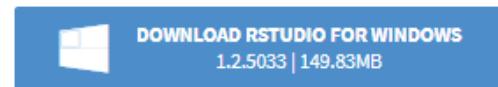
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RStudio Desktop 1.2.5033 - Release Notes

1. Install R. RStudio requires R 3.0.1+.
2. Download RStudio Desktop. Recommended for your system:



Requires Windows 10/8/7 (64-bit)



All Installers

Linux users may need to [import RStudio's public code-signing key](#) prior to installation, depending on the operating system's security policy.

RStudio 1.2 requires a 64-bit operating system. If you are on a 32 bit system, you can use an [older version of RStudio](#).

OS	Download	Size	SHA-256
Windows 10/8/7	 RStudio-1.2.5033.exe	149.83 MB	7fd3bc1b
macOS 10.12+	 RStudio-1.2.5033.dmg	126.89 MB	b67c9875
Ubuntu 14/Debian 8	 rstudio-1.2.5033-amd64.deb	96.18 MB	89dc2e22
Ubuntu 16	 rstudio-1.2.5033-amd64.deb	104.14 MB	a1591ed7
Ubuntu 18/Debian 10	 rstudio-1.2.5033-amd64.deb	105.21 MB	88c732f5

RStudio

The screenshot shows the RStudio website homepage. At the top, there is a navigation bar with several tabs: "The Comprehensive R Archive Net", "Course: Programming for business", "google traductor - Buscar con Google", and "Home - RStudio". Below the navigation bar is a header with the R Studio logo on the left and links for "Products", "Resources", "Pricing", "About Us", "Blogs", and a search icon on the right. The main content area features a blue hexagonal background pattern. On the left side, there is a decorative graphic of overlapping hexagons in green, blue, and red. In the center, the text "Introducing RStudio Package Manager" is displayed in large white font. At the bottom of the page, there are three smaller images: a screenshot of the RStudio IDE interface showing code and workspace panes, a map of the United States with a "ZIP explorer" callout, and a row of hexagonal icons for "rmarkdown", "Shiny", and "tidyverse".

The RStudio website homepage.

Products Resources Pricing About Us Blogs

Introducing RStudio Package Manager

rmarkdown

Shiny

tidyverse



IDE FOR YOUR R CODE
Integrated development environment (IDE) for R that includes a code editor, R console, plotting tools, and more.

that supports direct code execution, as well as tools for plotting, history, debugging and workspace management. [Click here to see more RStudio features.](#)

RStudio is available in open source and commercial editions and runs on the desktop (Windows, Mac, and Linux) or in a browser connected to RStudio Server or RStudio Server Pro (Debian/Ubuntu, RedHat/CentOS, and SUSE Linux).



Desktop

Run RStudio on your desktop

[RStudio Desktop >](#)



Server

Centralize access and computation

[RStudio Server >](#)

Take a tour of RStudio's IDE



Try RStudio Server Pro for free!



[Products](#)[Resources](#)[Pricing](#)[About Us](#)[Blogs](#)**Overview**

- Access RStudio locally
- Syntax highlighting, code completion, and smart indentation
- Execute R code directly from the source editor
- Quickly jump to function definitions
- Easily manage multiple working directories using projects
- Integrated R help and documentation
- Interactive debugger to diagnose and fix errors quickly
- Extensive package development tools

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- A commercial license for organizations not able to use AGPL software
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Support

Community forums only

- Priority Email Support
- 8 hour response during business hours (ET)

License

AGPL v3

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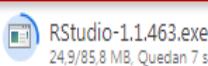
RStudio Desktop 1.1.463 — Release Notes

RStudio requires R 3.0.1+. If you don't already have R, download it [here](#).

Linux users may need to [import RStudio's public code-signing key](#) prior to installation, depending on the operating system's security policy.

Installers for Supported Platforms

Installers	Size	Date	MD5
RStudio 1.1.463 - Windows Vista/7/8/10	85.8 MB	2018-10-29	58b3d796d8cf96fb8580c62f46ab64d4
RStudio 1.1.463 - Mac OS X 10.6+ (64-bit)	74.5 MB	2018-10-29	a79032ba4d7daaa86a8
RStudio 1.1.463 - Ubuntu 12.04-15.10/Debian 8 (32-bit)	89.3 MB	2018-10-29	8a6755fa9fae2bafce289df3358aaf63

<https://download1.rstudio.org/RStudio-1.1.463.exe>

Mostrar todo





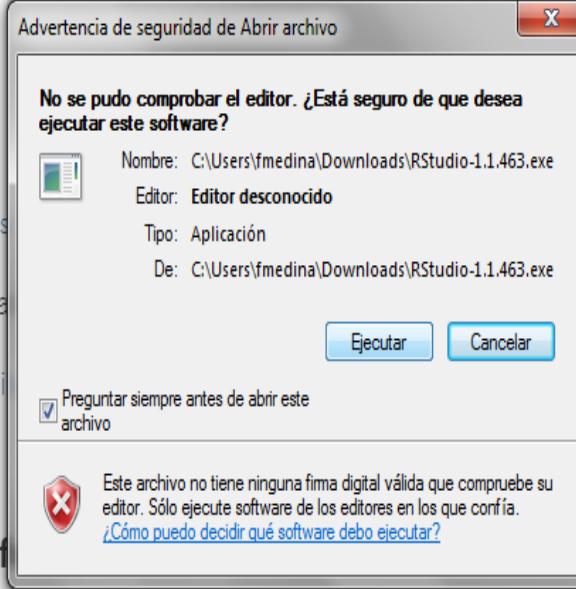
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RStudio Desktop 1.1.463 — Release Notes

RStudio requires R 3.0.1+. If you don't have R installed, download it from [here](#).

Linux users may need to [import RStudio's GPG key](#) before installing. See our [Linux security policy](#).

Installers for Supported Platforms

Installers	Size	Date	MD5
RStudio 1.1.463 - Windows Vista/7/8/10	85.8 MB	2018-10-29	58b3d796d8cf96fb8580c62f46ab64d4
RStudio 1.1.463 - Mac OS X 10.6+ (64-bit)	74.5 MB	2018-10-29	a79032ba4d7daaa86a8da01948278d94
RStudio 1.1.463 - Ubuntu 12.04-15.10/Debian 8 (32-bit)	89.3 MB	2018-10-29	8a6755fa9fae2bafce2
RStudio 1.1.463 - Ubuntu 12.04-15.10/Debian 8 (64-bit)	97.4 MB	2018-10-29	bc50d6bd34926c1cc3a
RStudio 1.1.463 - Ubuntu 16.04+/Debian 9+ (64-bit)	65 MB	2018-10-29	cf659db18619cc78d1592fefaa7c753

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**RStudio Desktop 1.1.463 — Release Candidate**

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Linux users may need to import our GPG key and update your package manager's security policy.

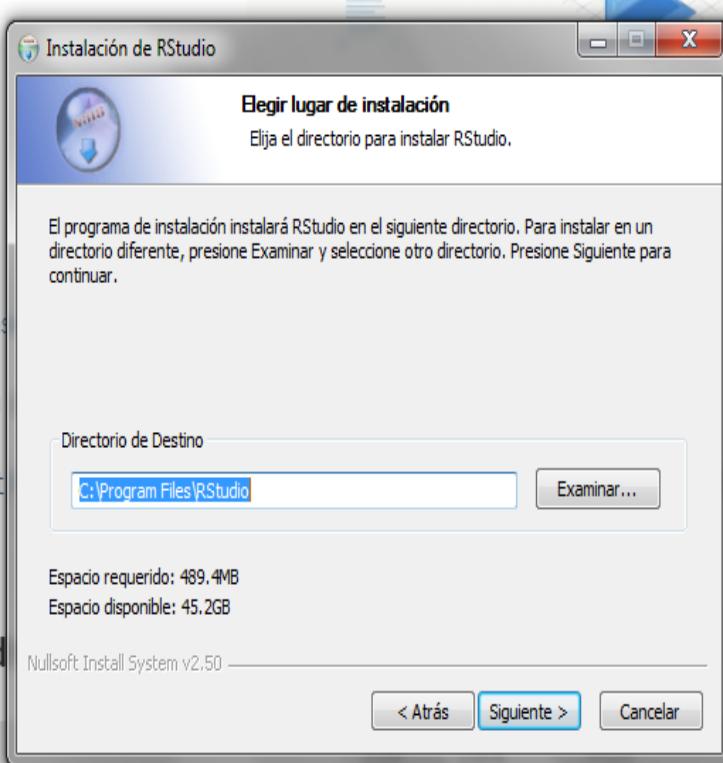
Installers for Supported Platforms

Installers

RStudio 1.1.463 - Windows Vista/7/8/10	85.8 MB	2018-10-29	58b3d796d8cf96fb8580c62f46ab64d4
RStudio 1.1.463 - Mac OS X 10.6+ (64-bit)	74.5 MB	2018-10-29	a79032ba4d7daaa86a8da01948278d94
RStudio 1.1.463 - Ubuntu 12.04-15.10/Debian 8 (32-bit)	89.3 MB	2018-10-29	8a6755fa9fae2bafce2
RStudio 1.1.463 - Ubuntu 12.04-15.10/Debian 8 (64-bit)	97.4 MB	2018-10-29	bc50d6bd34926c1cc3a
RStudio 1.1.463 - Ubuntu 16.04+/Debian 9+ (64-bit)	65 MB	2018-10-29	cf659db18619cc78d1592fefaa7c753

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RStudio 1.1.463 - Mac OS X 10.6+ (64-bit)	74.5 MB	2018-10-29	a79032ba4d7daaa86a8da01948278d94
RStudio 1.1.463 - Ubuntu 12.04-15.10/Debian 8 (32-bit)	89.3 MB	2018-10-29	8a6755fa9fae2bafce2
RStudio 1.1.463 - Ubuntu 12.04-15.10/Debian 8 (64-bit)	97.4 MB	2018-10-29	bc50d6bd34926c1cc3a
RStudio 1.1.463 - Ubuntu 16.04+/Debian 9+ (64-bit)	65 MB	2018-10-29	cf659db18619cc78d1592fefaa7c753

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RStudio

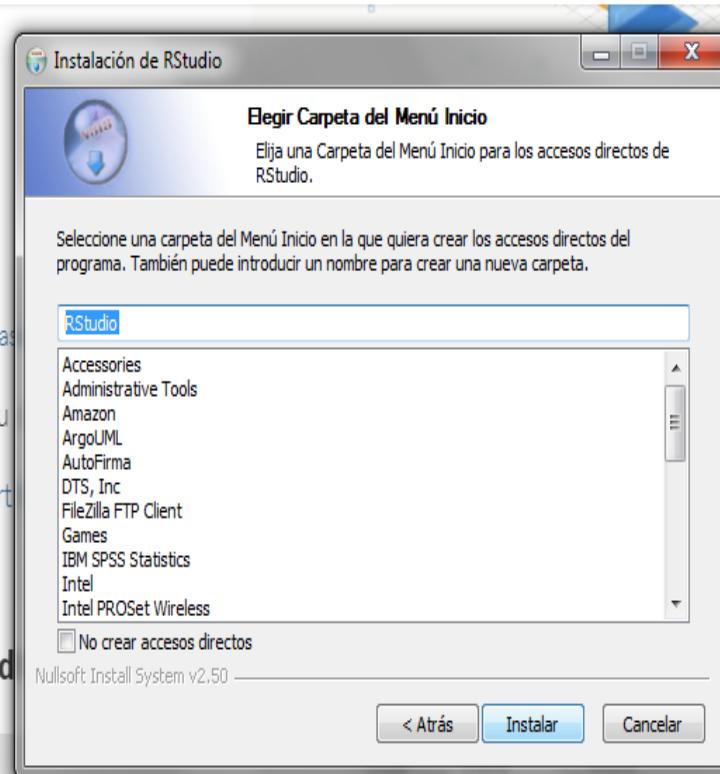
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Installers for Supported Platforms

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RStudio 1.1.463 - Windows Vista/7/8/10	85.8 MB	2018-10-29	58b3d796d8cf96fb8580c62f46ab64d4
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RStudio 1.1.463 - Mac OS X 10.6+ (64-bit)	74.5 MB	2018-10-29	a79032ba4d7daaa86a8da01948278d94
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RStudio 1.1.463 - Ubuntu 12.04-15.10/Debian 8 (32-bit)	89.3 MB	2018-10-29	8a6755fa9fae2bafce2
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RStudio 1.1.463 - Ubuntu 12.04-15.10/Debian 8 (64-bit)	97.4 MB	2018-10-29	bc50d6bd34926c1cc3a
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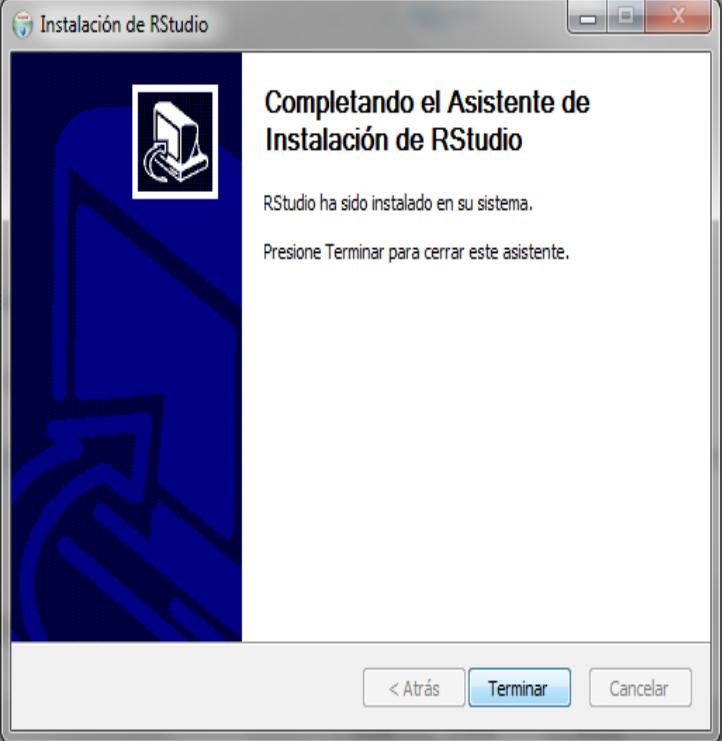
RStudio 1.1.463 - Ubuntu 16.04+/Debian 9+ (64-bit)	65 MB	2018-10-29	cf659db18619cc78d1592fefaa7c753
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RStudio 1.1.463 - Mac OS X 10.6+ (64-bit)	74.5 MB	2018-10-29	a79032ba4d7daaa86a8da01948278d94
RStudio 1.1.463 - Ubuntu 12.04-15.10/Debian 8 (32-bit)	89.3 MB	2018-10-29	8a6755fa9fae2bafce2
RStudio 1.1.463 - Ubuntu 12.04-15.10/Debian 8 (64-bit)	97.4 MB	2018-10-29	bc50d6bd34926c1cc3a
RStudio 1.1.463 - Ubuntu 16.04+/Debian 9+ (64-bit)	65 MB	2018-10-29	cf659db18619cc78d1592fefaa7c753

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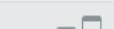


Go to file/function

Project: (None)

Console Terminal

Environment History Connections



```
R version 3.5.2 (2018-12-20) -- "Eggshell Igloo"  
Copyright (c) 2018 The R Foundation for Statistical Computing  
Platform: x86_64-w64-mingw32/x64 (64-bit)
```

```
R is free software and comes with ABSOLUTELY NO WARRANTY.  
You are welcome to redistribute it under certain conditions.  
Type 'license()' or 'licence()' for distribution details.
```

```
R is a collaborative project with many contributors.  
Type 'contributors()' for more information and  
'citation()' on how to cite R or R packages in publications.
```

```
Type 'demo()' for some demos, 'help()' for on-line help, or  
'help.start()' for an HTML browser interface to help.  
Type 'q()' to quit R.
```

```
[Workspace loaded from ~/.RData]
```

```
Error in loadNamespace(name) : there is no package called '.GlobalEnv'
```

> |

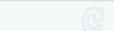
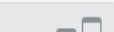


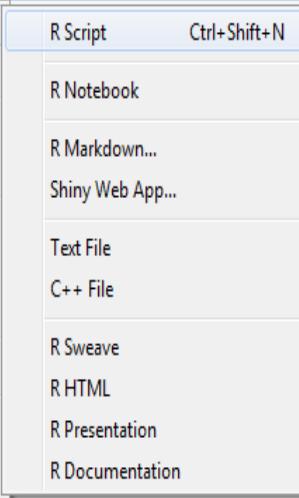
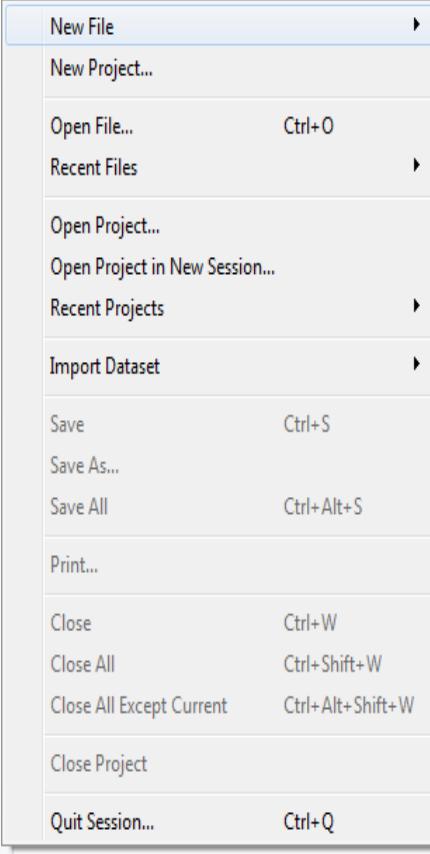
Global Environment



Environment is empty

Files Plots Packages Help Viewer

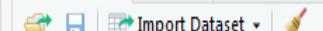




' for on-line help, or
interface to help.

is no package called '.GlobalEnv'

Environment History Connections



Global Environment

Environment is empty

Files Plots Packages Help Viewer





Untitled1 x

Source on Save |

Run | Source |

1 |

Environment History Connections

Import Dataset |

Global Environment

Environment is empty

Files Plots Packages Help Viewer

Zoom | Export |

1:1 (Top Level) R Script

Console Terminal

You are welcome to redistribute R under certain conditions.
Type 'license()' or 'licence()' for distribution details.

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

[workspace loaded from ~/.RData]

Error in loadNamespace(name) : there is no package called '.GlobalEnv'
> |





Untitled1*

```
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
```

```
if (A[i,j]==dato)
{
  A[i,j] = "*"
  z=1
  insertado=FALSE
  while((z<=length(B))&(insertado==FALSE))
  {
    if (B[z]==*)
    {
      B[z]=dato
      insertado=TRUE
    }
    else
      z=z+1
  }
  print(A)
  print(B)
}
```

49:1 (Top Level) R Script

Run the current
line or selection
(Ctrl+Enter)

Environment History Connections

Import Dataset

Global Environment

Environment is empty

Files Plots Packages Help Viewer

Zoom Export

Console Terminal

~/
You are welcome to redistribute R under certain conditions.
Type 'license()' or 'licence()' for distribution details.

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

[workspace loaded from ~/.RData]

Error in loadNamespace(name) : there is no package called '.GlobalEnv'

>





Untitled1*

```
31 z=1
32 insertado=FALSE
33 while((z<=length(B))&(insertado==FALSE))
34 {
35   if (B[z]=="*")
36   {
37     B[z]=dato
38     insertado=TRUE
39   }
40   else
41     z=z+1
42 }
43 }
44 print(A)
45 print(B)
46 }
47 }
```

50:1 (Top Level) R Script

Run the current line or selection (Ctrl+Enter)

Environment History Connections



Global Environment



Functions

apartadoA function ()

Files Plots Packages Help Viewer



Console Terminal

~/

>





File Edit Code View Plots Session Build Debug Profile Tools Help



Project: (None)

Untitled1*

```
31 z=1
32 insertado=FALSE
33 while((z<length(B))&(insertado==FALSE))
34 {
35   if (B[z]=="*")
36   {
37     B[z]=dato
38     insertado=TRUE
39   }
40   else
41     z=z+1
42 }
43 }
44 print(A)
45 print(B)
46 }
47 }
48
49
50 }
```

50:1 (Top Level) ▾

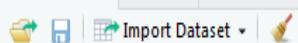
R Script ▾

Console Terminal ▾

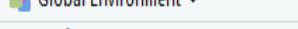
```
+ if (B[z]=="*")
+ {
+   B[z]=dato
+   insertado=TRUE
+ }
+ else
+   z=z+1
+
+ }
+ print(A)
+ print(B)
+
> apartadoA()
```

Execute

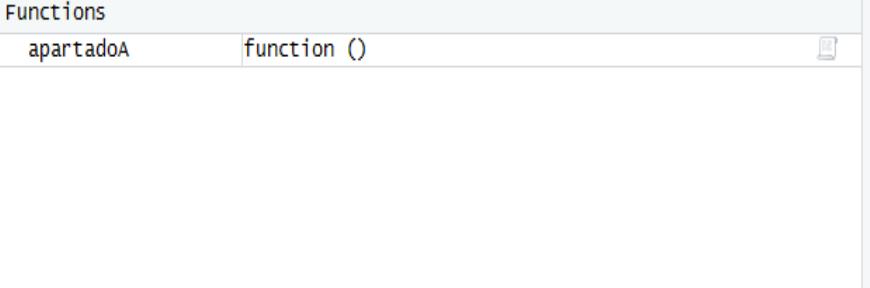
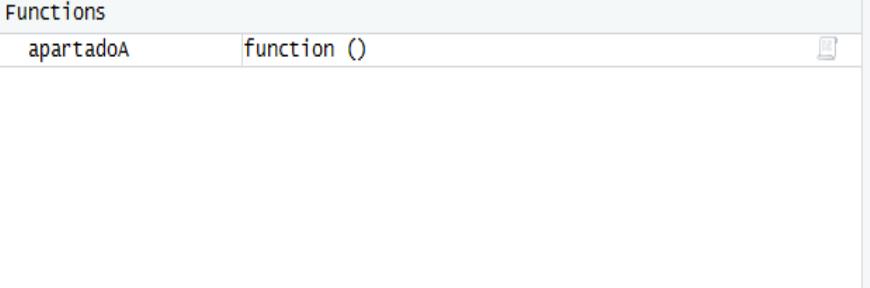
Environment History Connections



Import Dataset



Global Environment ▾



Files Plots Packages Help Viewer



RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

Go to file/function Addins

Project: (None)

Untitled1*

```
31 z=1
32 insertado=FALSE
33 while((z<length(B))&(insertado==FALSE))
34 {
35   if (B[z]=="*")
36   {
37     B[z]=dato
38     insertado=TRUE
39   }
40   else
41     z=z+1
42 }
43 }
44 print(A)
45 print(B)
46 }
47 }
```

45:11 apartadoA()

Environment History Connections

Import Dataset Global Environment

Functions apartadoA function ()

Files Plots Packages Help Viewer

Zoom Export

Console Terminal

```
+      }
+  }
+  print(A)
+  print(B)
+
> apartadoA()
     [,1] [,2]
[1,]    7    5
[2,]    4    7
[1] "*" "*" "*" "*"
[1] "escriba un número entre 1 y 10"
1: 4
Read 1 item
[1] "escriba un número entre 1 y 10"
1: |
```

1: |

ES 1:05 30/01/2019

R: Help

- *R is case sensitive!!!*
- To obtain aditional information:
 1. >**help(function)**
 >help("Arithmetic")
 >help("log")
 2. >**?function**
 >?Im
 >help("Im")

Servicio de Correo Electrónico × R: Fitting Linear Models × R: Miscellaneous Mathematical Functions ×

127.0.0.1:28920/library/stats/html/lm.html

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lm (stats) R Documentation

Fitting Linear Models

Description

lm is used to fit linear models. It can be used to carry out regression, single stratum analysis of variance and analysis of covariance (although [aov](#) may provide a more convenient interface for these).

Usage

```
lm(formula, data, subset, weights, na.action,
    method = "qr", model = TRUE, x = FALSE, y = FALSE, qr = TRUE,
    singular.ok = TRUE, contrasts = NULL, offset, ...)
```

Arguments

formula an object of class "[formula](#)" (or one that can be coerced to that class): a symbolic description of the model to be fitted. The details of model specification are given under 'Details'.

data an optional data frame, list or environment (or object coercible by [as.data.frame](#) to a data frame) containing the variables in the model. If not found in data, the variables are taken from environment (formula), typically the environment from which lm is called.

subset an optional vector specifying a subset of observations to be used in the fitting process.

weights an optional vector of weights to be used in the fitting process. Should be NULL or a numeric vector. If non-NULL, weighted least squares is used with weights weights (that is, minimizing $\sum(w^*e^2)$); otherwise ordinary least squares is used. See also 'Details'.

na.action a function which indicates what should happen when the data contain NAs. The default is set by the na.action setting of [options](#), and is [na.fail](#) if that is unset. The 'factory-fresh' default is [na.omit](#). Another possible value is NULL, no action. Value [na.exclude](#) can be useful.

method the method to be used; for fitting, currently only method = "qr" is supported; method = "model.frame" returns the model frame (the same as with model = TRUE, see below).

model, x, y, qr logicals. If TRUE the corresponding components of the fit (the model frame, the model matrix, the response, the QR decomposition) are returned.

singular.ok logical. If FALSE (the default in S but not in R) a singular fit is an error.

contrasts an optional list. See the contrasts.arg of [model.matrix.default](#).

offset this can be used to specify an *a priori* known component to be included in the linear predictor during fitting. This should be NULL or a numeric vector of length equal to the number of cases. One or more [offset](#) terms can be included in the formula instead or as well, and if more than one are specified their sum is used. See [model.offset](#).

... additional arguments to be passed to the low level regression fitting functions (see below).

Details

R: Arithmetic operations

```
> 2+2      sum  
[1] 4
```

```
> 2*5      Multiplication  
[1] 10
```

```
> 5/2      Real division  
[1] 2.5
```

```
> 5%/%2    Whole division  
[1] 2
```

```
> 5%%2     Module division  
[1] 1
```

```
> 5^2      Root  
[1] 25
```

```
> sqrt(4)  Square root  
[1] 2
```

R: Variable

- Variable: it is a memory space reserved to store a value that corresponds to a type of data supported by the programming language.
- Variables represent a data (when the program is executed it is replaced by the value of the data)
- Variable Name:
 - start with a letter followed by more letters, digits or the dot (.) Or underline (_) characters
 - Type of data

R: Logical Operators

Logical Operators:

- Greater than: >
- Greater than or equal to: >=
- Less than: <
- Less than or equal to: <=
- Equal to: ==
- Not equal to: !=

These comparison opearators return a logical value: TRUE or FALSE.

R: Variable

- Numeric: real numbers

Ex: >x=22

```
> class(x)
```

```
[1] "numeric"
```

- Logical: TRUE, FALSE

Ex: >x=(1+1==2)

```
> class(x)
```

```
[1] "logicial"
```

```
>x
```

```
[1]TRUE
```

Output

- Show data on screen during the execution of a program
 - `print()`
 - `cat()`

```
> cat("These are the main options.\n1.- Option 1\n2.- Option 2\n")
```

---Execution; the user will read:

These are the main options.

- 1.- Option 1
- 2.- Option 2

```
> print("Hello")
```

---Execution; the user will read:

Hello

Input

- User can enter a value in the console during execution using different functions:

```
>readline(prompt = "")
```

Example:

```
>colour=readline(prompt = "Write a colour: ")
```

-----The user will read

Write a colour:

-----User will write: red

Write a colour: red

----- the variable colour has the red value

```
> colour  
[1] "red"
```

Input

```
scan(file = "", what = double(), nmax = -1, n = -1, sep = "", quote = if(identical(sep, "\n")) "" else "\"", dec = ".", skip = 0, nlines = 0, na.strings = "NA", flush = FALSE, fill = FALSE, strip.white = FALSE, quiet = FALSE, blank.lines.skip = TRUE, multi.line = TRUE, comment.char = "", allowEscapes = FALSE, fileEncoding = "", encoding = "unknown", text, skipNul = FALSE)
```

Example:

```
> colour=scan(, what=character(),2)
```

-----The user will read

1:

-----User will write: red

1: red

----- The user will read

```
> colour=scan(, what=character(),2)
```

1: red

2:

-----User will write: blue

```
> colour=scan(, what=character(),2)
```

1: red

2:blue

Read 2 items

-----the variable colour has the following values:

```
> colour
```

```
[1] "red" "blue"
```



Exercise:

- Calculate
 - $1+2(3+4)$
 - 4^3+3^{2+1}
 - $(4+3)(2+1)$
 - $\sqrt{(1+2/3+4)^2}$
 - Real division: $(4+3)/(2+1)$
 - Module: $(4+3)/(2+1)$
 - Whole division: $(4+3)/(2+1)$

Exercise:

- Calculate
 - $A=5 ; B=6; C= A+B ; A=A+B; D=A+B$
 - $A=15; B=12; D=A*B; B=A*B; F=A*B$
 - Insert two numbers by Keyboard: 5 and 10. Add both of them and insert in a variable called C. Show the value of variable C with this message: The result is «value».
 - Insert two numbers by Keyboard: 2, 5 and 10. Perform the following operation and insert in the variable C, $C=2*5*10$. Show the value of variable C with this message: The result is «value».

Exercise

- Ask to the user the next data and show the next message with data:
 - Please, let me know the next data:
Insert your name: JUAN
Insert your age: 20
Insert your email: JUAN@GMAIL.COM

The user is JUAN. He is 20 years old and his email is JUAN@GMAIL.COM